AMENDMENT TO THE CLAIMS

Claims 1-198 (canceled)

199. (new) A memory element, comprising:

a substrate;

a cup-shaped electrical contact electrically coupled to said substrate, said cup-shaped contact having an open end facing away from said substrate;

a dielectric material formed over the interior surface of said cup-shaped contact; and

a programmable resistance material electrically coupled to a top surface of said contact,

wherein said electrical contact has a first portion with a first resistivity and a second portion with a second resistivity greater than said first resistivity, said second region being proximate to said programmable resistance material and said first portion being distant from said programmable resistance memory material.

200. (new) The memory element of claim 199, wherein said first portion is doped differently from said second portion.

201. (new) The memory element of claim 199, wherein said programmable resistance material includes a phase change material.

202. (new) The memory element of claim 199, wherein said programmable resistance material includes a chalcogen element.

203. (new) A memory element, comprising:

a substrate;

a cup-shaped conductive layer electrically coupled to said substrate, said conductive layer having an open end facing away from said substrate;

a dielectric material formed over the interior surface of said cup-shaped conductive layer; and

a programmable resistance material electrically coupled to a top edge of said conductive layer,

wherein said conductive layer has a first portion with a first resistivity and a second portion with a second resistivity greater than said first resistivity, said second portion being proximate to said programmable resistance material and said first portion being distant from said programmable resistance memory material.

204. (new) The memory element of claim 203, wherein substantially all electrical communication between said programmable resistance material and said conductive layer occurs through said top edge.

205. (new) The memory element of claim 203, wherein the area of contact between said programmable resistance material and said conductive layer is an annulus or portion thereof.

206. (new) The memory element of claim 203, wherein said first portion comprises at least one member selected from the group consisting of n-type polysilicon, p-type polysilicon, n-type silicon carbide, p-type silicon carbide, titanium-tungsten, tungsten silicide, tungsten, molydenum, and titanium nitride.

207. (new) The memory element of claim 203, wherein said second portion comprises at least one member selected from the group consisting of n-type polysilicon, p-type polysilicon, n-type silicon carbon compounds and/or alloys,

p-type silicon carbon compounds and/or alloys, tianium carbon-nitride, titanium aluminum nitride, titanium silicon-nitride, carbon, and titanium nitride.

208. (new) The memory element of claim 203, wherein said programmable resistance material includes a phase change material.

209. (new) The memory element of claim 203, wherein said programmable resistance material includes a chalcogen element.

210. (new) The memory element of claim 203, wherein said top edge includes one or more raised portions.